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A REVIEW OF THE AMERICAN SPECIES OF PRIACANTHIDÆ.

BY WILLARD L. MORRISON.

In the present paper I have attempted to give the synonymy of the genera and species of fishes of the family of Priacanthidæ (Big-Eyes or Catalufas) found in American waters, with analytical keys by which the species can be recognized.

The specimens examined by me are all in the Museum of the Indiana University, duplicate series having been sent to the U. S. National Museum.

I recognize the Priacanthidæ as a family distinct from the Serranidæ, from which it is apparently an off-shoot.

I am indebted to Dr. D. S. Jordan for the use of his library and other invaluable aid in the preparation of this paper.

The family may be thus defined :

Perciform fishes with the body oblong or ovate, covered with small, firm, rough scales; all parts of the body and head, and even snout and maxillaries being densely scaly. Head deep; mouth large, very oblique, lower jaw prominent. Bands of villiform teeth on jaws, vomer and palatine, none on tongue. Premaxillaries protractile; maxillaries broad, without supplemental bone, not slipping under the very narrow preorbital. Eye very large, its diameter nearly half the head. Posterior nostrils slit-like, vertical, near the eye. Preopercle more or less serrated, with one or more spines at the angle. Operculum very short, ending in two or three points behind. Gill membranes separate, free from the isthmus; pseudo-branchiæ large; gills four, a slit behind the fourth; gill-rakers long, slender, toothed. Branchiostegals 6. Lateral line continuous, high, forming an angle below spinous dorsal. Dorsal fin continuous, with about 10 spines, depressible in a groove. Anal spines 3; soft part of anal long, similar to soft dorsal, and terminating opposite to the termination of dorsal. Vertebrae (*cruentatus*) 9+13. Ventrals large, thoracic, I, 5, attached to body by membrane; pectorals small, rounded, with 16 to 19, rays; caudal fin truncate or lunate, of about 18 rays. Skull almost flat between the eyes, with a long, thin and high occipital crest.

These fishes inhabit deep waters in the tropics. They are of moderate size and most of them are rose-colored in life. The species,

about 20 in number, seem to be referable to two genera; distinguished by the following characters:—

Analysis of Genera of Priacanthidæ.

a. Scales very small, 80 to 100 in the lateral line; body oblong, more than twice as long as deep; preopercle with a spine at angle; interorbital area externally transversely convex, the cranium itself transversely concave, the elevation being formed of flesh; a conspicuous foramen in the interorbital area; lateral line extending upward and backward from upper angle of gill opening toward second dorsal spine, below which it changes its course, following outline of back to end of dorsal fin, thence direct to middle of caudal; anal fin rather long, its rays about III, 14; dorsal rays about X, 13.

PRIACANTHUS. 1.

aa. Scales large, very rough, 35 to 50 in the lateral line; body ovate, not twice as long as deep; preopercle with 2 small spines at angle. Interorbital space broad and flat, there being no flesh between skin and skull; no foramen in interorbital area; lateral line changing its course below the fourth dorsal spine; anal short, its rays III, 9; dorsal X, 11.

PSEUDOPRIACANTHUS. 2.

PRIACANTHUS.

Priacanthus Cuvier, Règne Animal Ed. II, 1829. (*Macrophthalmus*.)

Type: *Anthias macrophthalmus* Bloch.

Etymology, *prion*, saw; *äkantha*, spine; from the serrature of the spines.

Analysis of American species of Priacanthus.

a. Ventrals moderate, not extending beyond second anal spine; dorsal and ventrals pale.

b. [First spine only of dorsal and anal finely serrated, the others smooth; preopercle with its angle terminating in an oblique point; smaller than the spine in the next species; depth $3\frac{1}{2}$ in total length (male) or about $2\frac{1}{2}$ in length to base of caudal; length of head equal to depth; eye $2\frac{1}{2}$ in head; opercle with a flat pointed spine which does not project; supraclavicle with prominent edge; caudal slightly lunate, the upper lobe the longer; scales smaller near the back; D. X, 14; A. III, 15; lateral line 95. “Base of skull pierced with a

large hole between the great wing and the base of the superior sphenoid."] (*Poey*.) CATALUFA. 1.

bb. Body deep, the depth 3 in total length (with caudal ; $2\frac{3}{4}$ to base of caudal) ; dorsal and anal spines all finely serrated in front ; preopercle with a flat, triangular spine ; length of head nearly equal to distance from lateral line to edge of belly ; eye 2 in head ; opercular spine very small ; last dorsal spine $1\frac{1}{2}$ the length of second ; pectorals small, little longer than eye. Mouth large, oblique ; maxillaries reaching nearly to middle of the eye, 2 in head ; caudal slightly notched ; roof of mouth with longitudinal ridges : upper limb of preopercle almost vertical ; dorsal X, 13 to 14 ; anal III, 14 to 15. Lateral line 84. Skull without foramen below ; color rose, the back brownish, the dark color of the back sometimes forming rounded blotches on sides ; dorsal fin with small dark spots.

CRUENTATUS. 2.

aa. [Ventrals very long, extending to third soft ray of anal ; dorsal and ventral fins almost entirely black. All the rays and spines of dorsal and anal fins with striated or roughened surface ; preopercle with a cylindrical spine ; depth of body $2\frac{1}{2}$ in total length ; head $3\frac{1}{2}$; diameter of eye 3 in head ; operculum with two short spines ; a larger one above belonging to scapular bone ; length of second dorsal spine nearly three times in that of the last ; pectorals yellowish ; D. X, 13 ; A. III, 13 ; lateral line 80.] (*Günther*.)

BONARIENSIS. 3.

1. *Priacanthus catalufa*.

Catalufa Parra, Dif. Piezas Hist. Nat., 1787, plate 20 (Havana).

Priacanthus catalufa Poey, Proc. Acad. Nat. Sci. Phil., 1863, 182 (Havana) ; Poey, Repertorio I, 1867, 274 ; Poey, Synopsis, 1868, 302 ; Poey, Enumeratio 1875, 38.

Priacanthus macrophthalmus Gill. Rept. U. S. F. C. for 1871-2, 807. ("Occasional northwards.") (Not of C. & V.)

Habitat. West Indies, occasional northwards in the Gulf Stream.

Etymology, *Catalufa*, common name of the species at Havana.

This species is unknown to me. From the accounts given by Parra and Poey, it would seem to be more elongate than the next species, and Poey has indicated a differential character in the structure of the skull. Not having seen the skull I find it difficult to understand the character in question.

Since writing the above, Dr. Jordan has examined, at my request, small specimens in the U. S. National Museum, from Wood's Holl and Newport. These seem to belong to *P. catalufa* rather than to *P. cruentatus*. Compared with the latter, these are more slender, depth $2\frac{3}{4}$ in length; eye smaller, $2\frac{1}{2}$ in head, and the preopercular spine much smaller. In these specimens, the dorsal is unspotted, having only a dark shade across it; along the lateral line are eight small black spots, which probably disappear with age.

2. *Priacanthus cruentatus*.

Big Eye; *Catalufa*.

Labrus cruentatus Lacépède, Hist. Nat. Poiss. III, 1800, 522 (from a copy by Aubriet of a plate made by Plumier at Martinique). *Priacanthus cruentatus*, Cuv. & Val., III, 1829, 102; Poey, Syn. Pisc. Cub., 1868, 302; Poey, Enum. Pisc. Cub. 1875, 40.

Priacanthus cepedianus Desmarest, Prém. Dec. Ichthy. 1823, 9, plate 1 (Havana); Poey, Syn. Pisc. Cub. 1868, 302; Poey, Repertorio I, 1867, 273; Poey, Enum. Pisc. Cub. 1875, 39.

Priacanthus macrophthalmus Cuv. & Val. III, 1829, 97; Günther I, 1859, 215 (Cuba, Jamaica, Madeira) (not *Anthias macrophthalmus* Bloch, an East Indian species); Jordan & Gilbert, Syn. Fishes N. A. 1883, 544.

Priacanthus arenatus Cuv. & Val. III, 1829, 101 (Brazil) (description very brief).

Priacanthus fulgens Lowe, Trans. Zool. Soc. III, 1838, 174.

Habitat.

Etymology, *cruentatus*, bloody.

I identify the specimens collected by Dr. Jordan at Havana with the *Pr. cepedianus* of Poey, rather than with his *Priacanthus catalufa*. They agree most closely with the description of *Pr. cepedianus* of Desmarest. The description and figure of *Labrus cruentatus* Lacépède are very far from accurate, but it seems almost certain that it was drawn from a specimen of this species in which the dark markings on the side were more distinct than usual.

Poey recognizes *cruentatus* and *cepedianus* as distinct species but he says that they differ only in color.

Since writing the above, two mounted specimens have been received by the museum of the Indiana University. These were sent by Poey from Havana under the name of *Priacanthus cepedianus*.

3. *Priacanthus bonariensis*.

Priacanthus bonariensis Cuv. & Val. III, 1829, 105 (Buenos Ayres); Günther, I, 1859, 216. (South America.)

Habitat. Atlantic Coast of South America.

Etymology, from Buenos Ayres.

This species is known to me from descriptions only.

PSEUDOPRIACANTHUS.

Pseudopriacanthus Bleeker, Versl. Ak. Wet. Amsterd., 1869, 241 (*niphonius*).

Type *Priacanthus niphonius* C. & V., from Japan.

Etymology, *pseudos*, false; *Priacanthus*.

This genus is distinguished from *Priacanthus* by its deeper form, its larger and rougher scales, its shorter anal fin, and by several peculiarities of form. Two species are known, the one West Indian, the other from Japan.

Analysis of the American species of Pseudopriacanthus.

a. Head, 3 in length to base of caudal; $1\frac{1}{2}$ in depth; depth 2 in length to base of caudal; eye 2 in head, placed very high; chin very rough; profile from first dorsal spine to chin straight; snout extremely short and blunt; mouth large and very oblique. Maxillaries reaching almost to the middle of eye, $1\frac{1}{2}$ in head; spines striated, not serrated; preopercle serrated; an embedded spine at angle of opercle; preorbital roughly serrated; scales large and very rough; base of dorsal $2\frac{1}{2}$ times base of anal; tips of soft dorsal reaching beyond base of caudal; soft rays of dorsal, anal and ventrals rough or serrated throughout; caudal truncate; ventrals large, extending to first ray of anal; pectorals small, about as long as eye; fourth and last dorsal spines of equal length, second $1\frac{1}{2}$ times the first, sixth the longest. Color scarlet red; ventrals tipped with black; D. X, 12; A. III, 9; lateral line 40 to 50. ALTUS. 4.

4. *Pseudopriacanthus altus*.

Priacanthus altus Gill, Proc. Acad. Nat. Sci. Phil., 1862, 132 (very young specimen from Narragansett Bay); Jordan & Gilbert, Syn. Fishes N. A., 1883, 545 (from original type).

Pseudopriacanthus altus, Jordan & Eigenmann, Proc. U. S. Nat. Mus. 1887, 269 (Charleston).

Pseudopriacanthus? Poey, Enumeratio, 1875, 40 (Havana).

Habitat. Atlantic Coast of U. S. and West Indies, in deep water (Rhode Island, Charleston, Pensacola, Havana).

Of this rare species I have examined two adult examples 8 and 10 inches in length from Charleston and Pensacola.